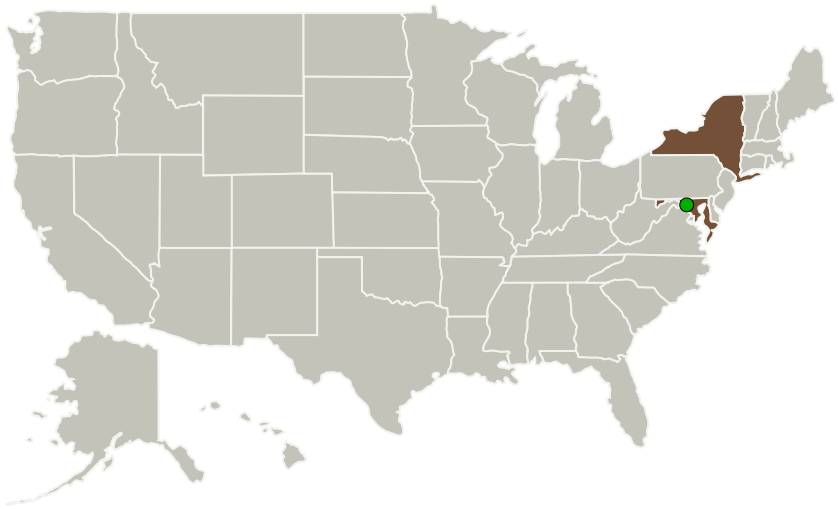
High Temperature Joint Actuator, Phase I

Completed Technology Project (2016 - 2016)

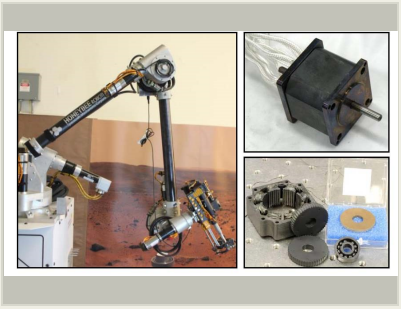
Project Introduction

Future Venus or Comet mission architectures may feature robotic sampling systems comprised of a Sampling Tool and Deployment Mechanism. Since 2005, Honeybee has been developing extreme-temperature motors, position sensors, brakes, and gearboxes, resulting in multiple successful demonstrations of component-level technologies under Venus-like environmental conditions. An important nextstep toward a viable Venus or Comet surface mission architecture is to combine these components and raise the TRL of the total sampling system including the Deployment Mechanism. The proposed work will leverage component development to date by integrating extreme temperature actuators with functional elements to demonstrate a complete multi-DOF Deployment Mechanism suitable for candidate surface missions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Honeybee Robotics, Ltd.	Lead Organization	Industry	Pasadena, California
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



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Primary U.S. Work Locations	
Maryland	New York

Project Transitions

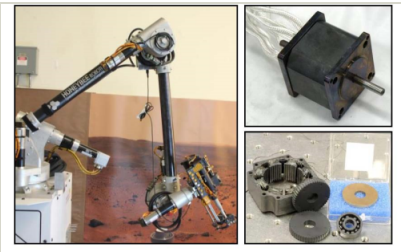
June 2016: Project Start

December 2016: Closed out

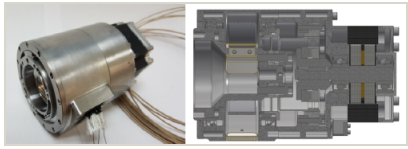
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139880)*

Images



Briefing Chart Image
High Temperature Joint Actuator, Phase I
(https://techport.nasa.gov/image/129075)



Final Summary Chart Image
High Temperature Joint Actuator, Phase I Project Image
(https://techport.nasa.gov/image/127273)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Honeybee Robotics, Ltd.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

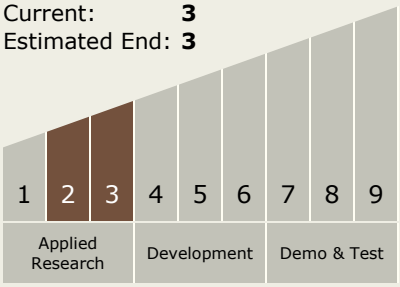
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Andrew Maurer

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.6 Cryogenic / Thermal

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System